There is nothing remarkable about the rest of the legs, except that they are slightly scabrous.

Abdomen slender, filiform, wider than the prothorax; the supraanal plate short, transverse, fully twice as broad as long, truncate-rounded at the free end; terminal cleft portion of the infragenital plate strongly and suddenly compressed, and projecting wholly beyond the abdomen, but hardly reaching the extremities of the *cerci*; these are oval, broadly foliaceous, scarcely thrice as long as broad, indistinctly articulated at the base, where they are formed of a number of very short joints all ankylosed together, but showing three tolerably distinct large apical joints, the terminal one of which is obliquely truncate, so that the upper margin of the appendage appears strongly convex, while the lower is almost straight.

Colour of the living insect, with the wings closed, pale luteous grey; the tegmina slightly yellower than the body.

Male unknown.

Total length 50 millims.; length of prothorax $14\frac{1}{2}$, of which the neck is $4\frac{1}{2}$, width of prothorax at supracoxal dilatation 2; length of abdomen 26, width of abdomen $2\frac{2}{3}$; length of tegmina $23\frac{1}{2}$, width of tegmina 5; length of wings $22\frac{1}{2}$, of fore coxa $7\frac{1}{2}$, of fore femur 9.

Hab. A single specimen of this beautiful little insect was captured by my wife on a dinner-table in Calcutta. It flew in at the window, attracted by the bright lights. Westwood's *H. tenuipes* is said to have come from Senegal.

XLV.— *On some new and little-known Amphipodous Crustacea.* By the Rev. T. R. R. Stebbing, M.A.

[Plates XIX. & XX.]

Amphilochus concinna, n. sp. Pl. XIX. figs. 1, 1*a*, 1*b*.

Amphilochus concinna was dredged in or near Torbay in April 1876.

The antennæ are subequal in length; the superior the more robust, with the first joint longer than the other two and the flagellum as long as the peduncle; several articulations of the flagellum are furnished with long hairs. In the lower antennæ the penultimate joint is the longest; the flagellum has only three articulations, together equalling in length the last joint of the peduncle. The head has a depressed rostrum; each side also is produced into a sharp point between the upper and

lower antennæ. The segments of the pereion are not so short compared with those of the pleon as in *Amphilochus manudens*. The coxæ increase in depth and breadth from the first to the fourth, which is very large; the lower edges of these are finely serrated. The first and second gnathopods are similar in form, the second being twice as large as the first. The thighs are elongate. The hands are more or less triangular, with the palms rounded and finely denticulate; the front margin of the hand is produced beyond the hinge-joint of the finger into a sharp tooth. In the second gnathopods the long sharp finger curves right round the palm and meets the wrist, which is produced all along the hinder margin of the hand, and terminates in three or more cilia. In the first gnathopods the finger is scarcely so long as the palm, and the process of the wrist is shorter than the margin of the hand. In the second gnathopods the distal extremity of the knee is obtusely pointed, and terminates in a short seta; while the distal extremity of the metacarpus is truncate, with a small cavity occupying the hinder half of the truncated line, and containing in the centre of this cavity a short stiff seta. This minute feature may perhaps be present also in the first pair of gnathopods; but the point could not be determined in the specimen examined. The five pairs of pereiopoda are subequal, long and slender—the first two having the thighs elongate and the metacarpus a little produced anteriorly, the last three having the thighs larger than the coxæ, broad, and with serrated edges, and the metacarpus posteriorly produced.

The telson and the last pair of pleopoda were wanting in the specimen here described; but the excavations in the pleon-segment from which they had been detached seemed to suggest that the caudal plate would have been lanceolate, as in *Amphilochus manudens*, and that the last pleopoda would have been of considerable size, though in this respect they would differ from those of the species just named. The two other pairs of pleopoda are biramous, the antepenultimate pair having the peduncle much longer than that of the penultimate, and the branches extending further.

The specimen described is a female; its length one eighth of an inch.

Danaïa dubia, Spence Bate. Pl. XIX. figs. 2, 2 *a*–2 *c*.

Danaïa dubia received its specific name from Mr. Spence Bate, its discoverer, in allusion to doubts which he felt on certain points of its structure, his one specimen having disappeared before the examination of it was completed. Specimens since

obtained from the waters of Torbay enable me to remove the doubts, and supply some additional details.

The figure given in the 'British Sessile-eyed Crustacea' is rather striking in appearance from the position of the flagellum of the upper antennæ, from the angular curvature of the back, the ragged inferior margin of the coxæ to the first pereiopoda, and the very considerable size of all the pereiopoda. The flagellum above mentioned is represented as directed forwards and upwards in a straight line, forming an obtuse angle with the peduncle. This position is one that I have once, but only once, observed the flagella to assume; it cannot, therefore, be depended on for facilitating recognition of the animal at a glance. In regard to the other points, I may say that the pereiopoda in my specimens are less powerfully developed, the curvature of the back is normal, and the coxal margin such as will be presently described.

In the penultimate joint of the upper antennæ the distal extremity is produced into a sharp point on the inner side. I have for this reason figured both the upper antennæ, as otherwise this peculiarity could not be exhibited. The eyes are round and red. The sharp lateral process of the head does not run out in an unbroken straight line, there being as it were the descent of a step just before the terminal spike is reached. The first gnathopods are simple and slender, the wrist rather longer than the hand, both having nearly parallel sides. The finger is slightly curved, and not nearly so long as the hand. The coxæ would seem to be rudimentary. The second gnathopods have the hand a little dilated at the palm, which is fringed with short hairs and defined by a small tooth. The coxæ have the infero-anterior margin smoothly rounded; but the hinder part of this margin is ornamented with three or four sharp denticulations curving forwards. The same description applies to the following coxæ, which are rather longer than their predecessors and shorter than those which come next. Mr. Spence Bate has already noticed that these latter, the coxæ of the second pereiopoda, are furnished with a row of solitary hairs planted within the margin. The same observation, however, must be extended to the coxæ of the two preceding pairs of limbs, the hairs in each case numbering some five or six.

Callimerus acudigitata, n. gen. et sp. Pl. XX. figs. 3, 3*a*, 3*b*.

The specimen now described was dredged near Hope's Nose, in Torbay, in September 1874. I have not since seen or heard of any similar specimen; and though in size and general

appearance it comes near to all the three genera *Probolium*, *Danaïa*, and *Amphilochus*, it seems necessary to assign it in solitary grandeur to a genus by itself. Its length is little more than an eighth of an inch.

The antennæ are subequal. Of the upper, the basal joint is the longest and stoutest, though shorter than the head in the lower, the penultimate and antepenultimate joints are slender, and the ultimate inconspicuous. The flagella of both pairs of antennæ consist of few and small articulations. There is no secondary appendage. The head has a small, slightly depressed rostrum; the lateral margin is produced into a sharp point below the upper antennæ. The eyes are round.

The coxæ of the first segment are almost concealed, only the upper margin appearing above the coxæ of the second segment. The first gnathopods are simple or almost simple. The hand is short, with sides nearly parallel, and some hairs in the neighbourhood of the palm. The finger is shorter than the hand, only slightly curved, and set a little way from the antero-distal extremity of the hand, from which point there springs a long hair. The wrist is longer than the hand; near its distal hinder extremity there projects what seems to be a rather pronounced spine, unless I have been deceived by the convergence of two hairs—a source of error which has more than once led observers astray, and which cannot be easily obviated when specimens are too rare to permit of their being freely handled.

The second gnathopods resemble those of *Amphilochus*. The hand is triangular, with the same antero-distal tooth as in *Amphilochus*; the palm is denticulate. The wrist is produced, though not so far as to reach the palm; from its extremity, and from the inner side of the produced portion, spring some long hairs. The finger is remarkable: it curves over and beyond the palm and wrist, ending in a long, straight needle-like portion, not opposable, it would seem, to any portion of the limb.

The pereiopoda are subequal, all moderately long and slender. The coxæ of the second pair are large, similar in shape to those of *Danaïa dubia*, but very slightly denticulate round the margin; while the lower margins of the preceding pairs of coxæ are very sharply but unevenly denticulate. The last three pairs of pereiopoda are remarkable for their large membranaceous thighs, the antepenultimate pair being oblong-ovate and having on the lower margin an irregular denticulation like the coxæ above mentioned. The last two pairs are more rounded and denticulated evenly. The telson is lanceolate, excavated above. The pleopoda are all biramous. The

branches of the penultimate pair, which are much shorter than either of the other pairs, are unequal. The ultimate and antepenultimate pairs have the peduncle longer than the branches; the branches subequal. While the pereion is stout, the pleon is narrow and elongated. The colour is tawny, with some red spots chiefly on the large coxæ.

The generic name refers to the beauty of the denticulate membranaceous thighs; the specific name to the peculiarity of the finger of the second gnathopods.

Exunguia stilipes, Norman, and *Cratippus tenuipes*, Spence Bate.

The genus *Cratippus* and the species *Cratippus tenuipes* were founded by Mr. Spence Bate on a single specimen, and that apparently an abnormal or imperfect one. The type specimen, such as it was, has been unfortunately mislaid or lost. It thus becomes impossible absolutely to decide whether the genus *Exunguia* (Norman) is or is not identical with *Cratippus*, unless fresh specimens of the latter should happen to be found agreeing with the original description. *Exunguia stilipes* was described in this Journal (ser. 4, vol. iii. p. 359) by the Rev. A. M. Norman, with that writer's usual clearness and accuracy. Specimens minutely agreeing with his description may be obtained at Meadfoot and at Anstis' Cove, Torquay, by a careful examination of the sponge *Halichondria panicea*, which in many places coats the rocks beneath overhanging seaweeds. The sponge should be broken into small pieces, when now and then a little white glistening line, about an eighth of an inch long, will reward the searcher with the desired object. A person of sharp sight may notice that the white line is ornamented by a pair of red eyes.

Accompanying Mr. Norman's description above referred to are figures of certain portions of the animal—one especially deserving of attention, which shows the microscopic serrulation of the branches of the uropoda. It does not appear, however, that any figure of the whole animal has hitherto been published. In regard to the lower antennæ, I may notice that the underside is flattened and that the outer edges are minutely serrulate. The flagella of both pairs of antennæ have some rather long fine hairs projecting from them. The eyes are round; the facets over the red pigment is white. Under the rostrum of the head there is a projecting triangular plate, beneath which are packed the maxillipeds. The metacarpus of the first gnathopods is stouter than the wrist and hand. The antepenultimate uropods are folded under the

pleon, and do not extend so far as the penultimate pair. The ivory whiteness of the body is not in any part stained with colour; but under the microscope pale markings may be observed, especially on the dorsal surface, such as are delineated in the accompanying figure (Pl. XX. fig. 4).

In establishing the genus *Exunguia*, Mr. Norman considered that his specimen was distinguished from *Cratippus* by the remarkable character of the first gnathopods, which have no finger, its place being supplied by a fasciculus of little spines projecting directly forwards. The generic account of *Cratippus*, on the contrary, had described the first two pairs of hands as subchelate. Nevertheless, both in detail and in general facies, both by figure and description, *Cratippus tenuipes* and *Exunguia stilipes* so closely resemble one another that it would be a decidedly singular case of mimicry or coincidence of form if they really belonged to distinct genera. But it will be noticed that in the specific description of *Cratippus tenuipes* the generic account which makes the gnathopoda subchelate is modified by the explanation that the first gnathopoda are scarcely subchelate. Further, these limbs are omitted from the figure of the creature—a fact which is noted but not explained. But any one dealing with a single specimen of *Exunguia stilipes*, which he wishes to describe but not to mutilate, will understand the reluctance with which slender organs such as those under discussion sometimes lend themselves to the manipulation requisite for faithful figuring or accurate description. Packed away as they often are between the coxæ, and perhaps more than half hidden by other projecting limbs, one must in such case be content with observing "pas ce qu'on veut, mais ce qu'on peut." Now the fasciculus of little spines which does duty in place of a finger in the first gnathopods of *Exungia stilipes* can only with great difficulty be distinguished from a finger when the animal is dry; and even when it is in liquid, the convergence of the hairs or spines often produces a finger-like appearance, especially as the anterior spine or hair is the longest and often takes a slight curve such as is common in the finger of an Amphipod. In the first specimen I myself examined, not only was this appearance decidedly set up, but, by a curious coincidence, two hairs on the palm of one of the second gnathopods produced the appearance of just such a tooth as Mr. Spence Bate figures and describes in that position on one of the second gnathopods of *Cratippus tenuipes*.

While, however, the remarkable antennæ, the shallow coxæ, the relative sizes of gnathopods and pereiopoda, the general appearance of the segments both of pereion and pleon, the telson

and other caudal appendages, all establish generic agreement between *Cratippus* and *Exunguia*, there are still some points of difference available for specific distinction, even allowing for a reasonable probability of error as to the finger of the first gnathopods of *Cratippus tennipes*. For instance, the hand is said to be three or four times as long as the wrist, whereas in *Cratippus* (*Exunguia*) *stilipes* the wrist is rather longer than the hand; the penultimate joint in the last three pairs of pereiopoda is described as serrated on the inner margin, while in Mr. Norman's species, or at any rate in my specimens of it, that margin is perfectly even but for one very minute spine at about the centre. The eyes are spoken of as round and black; but the colour of the eyes in a dead specimen cannot be depended on.

EXPLANATION OF THE PLATES.

Plate XIX.

Fig. 1. *Amphilochus concinna.* 1 *a*, first gnathopod; 1 *b*, second gnathopod.
Fig. 2. *Danaïa dubia.* 2 *a*, first gnathopod; 2 *b*, second gnathopod; 2 *c*, pleon.

Plate XX.

Fig. 3. *Caliïmerus acudigitata.* 3 *a*, first gnathopod; 3 *b*, second gnathopod.
Fig. 4. *Cratippus* (*Exunguia*) *stilipes.* 4 *a*, first gnathopod; 4 *b*, second gnathopod; 4 *c*, underside of antennæ and head; 4 *d*, maxilliped; 4 *e*, underside of pleon.

XLVI.—*Descriptions of twenty-five new Species of* Hesperidæ *from his own Collection.* By W. C. Hewitson.

Hesperia Cylinda.

Alis utrinque rufo-fuscis: anticis punctis octo, posticis uno, hyalinis: posticis infra fasciis tribus punctisque duobus griseis.

Upperside dark brown, paler at the margins of the anterior wing. Anterior wing with eight transparent spots—three at the middle, one near the inner margin, three near the apex, and one below these. Posterior wing with one small triangular transparent spot.

Underside. Anterior wing as above, except that there is a pale spot on the middle of the costal margin, a fifth spot near the apex, and an undulate arcuate submarginal band of grey. Posterior wing dark brown, with the nervures, a spot before the middle, a band below this, and a submarginal band of